

Cold Water

To the Medical Faculty of the
University of Pennsylvania.

Wm H. McCalla

admitted April 1st 1867



Wm. D. McCall

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Gentlemen,

In conformity with the regulations of this Institution, requiring of each candidate for medical honours; a Dissertation deduced from the science of medicine; I have selected as the subject of a few remarks, the Medical effects produced by the external application of cold water in fever.

My practical knowledge of this remedy, as will be seen in the sequel, is very limited; on which account, perfection cannot, — will not be expected.

There is not a science which exhibits a more extensive field for useful research, or affords more ample entertainment to an inquiring mind, than that of medicine; yet the improvements in it, since the revival of learning, have been, by no means, equal to those in other arts. Whilst the science of medicine has been kept upon the rack, by theories, as numerous as they are discordant; other sciences have progressed, in life's instructed paths, to a more perfect state.

The knowledge of the medical art, is very far from being completely established; — the field for observation is wide and extended, — the subject inexhaustible.

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In taking a retrospect in the history of the cold bath, we find it was known to most of the nations of antiquity; the people of the East were ever accustomed to it, and the practice they have continued to the present time. The Greeks, long made use of no other bath than what was afforded them by seas and rivers. Public baths were discouraged, and even prohibited; they were contented at home with the use of artificial baths of very simple and rude construction. The Romans, who were chiefly employed in the culture of the grained bathed the body partially every day; their habits of life, and dress rendered this practice necessary. It was long before artificial baths were known among them; the idea of these, they borrowed from the Greeks; at first they corresponded with the simplicity of the age, but in process of time, all the graces of architecture were lavished upon them, they became the impetus of all, the most fascinating luxuries, all that could give relaxation to the mind, or afford amusement to the people, were here collected. The system of bathing was finally carried to a height of luxury, and expense, which far exceeded that of the Greeks, or any of the Asiatic nations. In Austria the cold and warm baths constitute a very essential part of the system of living, and to

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a proper use of them, no doubt, they owe a great share of their longevity, their robust state of health, their predisposition to so few mental diseases, and their cheerful temper. In Germany, Turkey and some other nations of Europe and Asia; the bath was considered, not only a luxury, but a very important remedy in disease; and Iblakum it was so sensible of its utility, that he enforced the practice by an express mandate. At what period it was first employed for medicinal purposes, I am unable to say, but it must have been an ancient remedy, as appears from Hippocrates, Galen and others, who employed it extensively for the cure of certain febrile affections; yet it does not appear that any laws were ever laid down, by which it could, with safety, be employed. Although it was freely employed, and with considerable success by Galen, for the reduction of the preternatural heat of fevers, and as late as the year seventeen hundred and thirty seven by De Haven a German physician for the cure of a low epidemic fever which prevailed in Polesia; yet neither of these practitioners, appears to have been guided in its application, by any methodic rules. From some cause or other after the time of De Haven it fell into discredit. The honour of restoring the practice is due to Doct. Wright a British physician of consider-

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the crinoid. In the year seventeen hundred and seventy seven, during the maceration of an ardent fever, he became by his own request the subject of this, then singular practice. The result exceeded his most sanguine expectations; the relief was immediate, and by its continued application his health was speedily restored. He afterwards found it successful in many other cases of fever, of which the world have our account. Since that time, numerous practitioners, in various parts of the globe, particularly in sultry climates, have pursued the same mode of treatment with nearly similar results. Although much at this period had been accomplished, yet much more remained to be done; the superstructure was yet to be raised upon the foundation so ably laid by Doct. Wright. This task devolved upon the late celebrated Doct. Cline of Liverpool. To him the world is chiefly indebted for the regulation of this bold practice, founded upon an ample field of experience. It is much to be regretted that in the United States a remedy so important, and so easy of attainment, should be so much neglected. The prejudices that have been raised against a method of treatment so bold and uncommon, have prevented it from making much progress. Its mode of operation has been misapprehended; the proper time for

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not only maintained but also the - persons, Physicians, &c.
the present day, that nearly one half of all the fluids taken into the
body, during the summer, passes off by the excretents, either by sen-
sible or insensible perspiration.

is a prevention of disease, but more especially of low conta-
gious fevers; we have reason to believe, from the observations
of many eminent authors, that the cold bath will be found
more effectual, than most of the means, usually employed
in that purpose. It was the opinion of Doct. Wright that
if well timed, the cold affusion would not only cure all
petite exacerbations, but even prevent their taking place.
An instance strikingly illustrative of its preventive power, is
mentioned by Doct. Currie of Liverpool to have taken place
in the year seventeen hundred and ninety two, in a regiment
of troops, stationed in that place. Then, he states, became
affected with a low contagious fever, which, notwithstanding
all the usual means had been adopted for arresting it, con-
tinued to spread rapidly among the men. Immersion in the
sea was finally proposed which being performed, had the desi-
red effect: in several, the fever was at once cured, and

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The first of these is the fact that the system is not a closed system. It is a system in which the total energy is not conserved. The system is open to the surroundings, and energy can be exchanged with them. This is the case for all systems in nature. The second is the fact that the system is not in equilibrium. The system is in a state of constant change, and the total energy is not conserved. The third is the fact that the system is not a simple system. It is a complex system, and the total energy is not conserved. The fourth is the fact that the system is not a single system. It is a system of many systems, and the total energy is not conserved. The fifth is the fact that the system is not a static system. It is a dynamic system, and the total energy is not conserved. The sixth is the fact that the system is not a homogeneous system. It is a heterogeneous system, and the total energy is not conserved. The seventh is the fact that the system is not a uniform system. It is a non-uniform system, and the total energy is not conserved. The eighth is the fact that the system is not a simple system. It is a complex system, and the total energy is not conserved. The ninth is the fact that the system is not a single system. It is a system of many systems, and the total energy is not conserved. The tenth is the fact that the system is not a static system. It is a dynamic system, and the total energy is not conserved.



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 of water is a remedy in disease. It is not only requisite to have
 suited to the time, proper for its application, but the mode
 of laying it ought to be known to the Practitioner. and I will
 suppose a discrimination is made, with regard to the disease, and
 the constitution ~~and~~ and ~~contributions~~ of the patient, it may be of ser-
 vice last utility; or even pernicious. It is said that the Roman
 Emperor Augustus was cured of a fever by the cold bath; but the same
 remedy unseasonably timed, proved fatal to Alexander his heir.
 The most usual forms of applying cold water, as an external
 remedy in fever, are by affusion - immersion and by sponges or
 lotion. In the United States, it is most usually performed by
 sponging; being generally found more convenient, and patients
 are willingly submit to it, than to the other modes; But the af-
 fusion which, in general, has found more power, and its effects,
 I conceive, more permanent. In some states of disease, as I shall
 hereafter have occasion to notice, the lavation, or sponging of the body
 will be most proper. Immersion has been occasionally resorted
 to. But I have its great indications and probably not superior
 to the ~~other~~ it is much less usual. according to the opinions of



1. The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \sum_{n=0}^{\infty} a_n x^n$, where $a_n = \frac{1}{n!}$. It is shown that $f(x)$ is an entire function and that $f(x) = e^x$.

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but, as the data are weak, there is some doubt as to whether the process is



The second part of the work is entitled "The history of the human mind," and is divided into two parts, the first of which is entitled "The history of the human mind in general," and the second "The history of the human mind in particular." The first part is divided into three sections, the first of which is entitled "The history of the human mind in general," and the second "The history of the human mind in particular." The second part is divided into two sections, the first of which is entitled "The history of the human mind in general," and the second "The history of the human mind in particular."

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It is from a consideration of the whole of the system of the world
in general, and of the various parts of it in particular, that we learn
that the system of the world is not a mere collection of separate
parts, but a system of parts, each of which is connected with the
whole, and which is itself a system of parts, each of which is
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in the most remote and isolated of our territories, and
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The history of the people of the
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good effects result, from whisking the body with cold water, by means of wet clothes; and does not act, but affeering the surface, would, in many cases, be attended with more speedy, and permanent effects than the lavation.

In the *Influenza*, when the accompanying fever is of the Typhoid type the external application of cold water, has been succeeded by signal advantage. Doubts exist with many practitioners, with regard to the propriety of this remedy, in cases of disease connected with pulmonary symptoms. That cases of this nature, have been successfully treated by this remedy, is not I think, to be questioned. Doct. Currie of Liverpool, whose veracity it is to be relied on; states, that being himself attacked by *Influenza*, he employed although of a Phlegmatic habit, with entire safety, and with decidedly good effects, this remedy. Other similar cases are recorded of its safety - I know a similar instance, in the case of a medical gentleman of South Carolina, who was attacked with this disease (which then raged as an epidemic) at the time that, he was suffering under a Pulmonary affection. The symptoms were very violent. The respiration was performed with difficulty, - and the oppression at the breast was so great at certain periods, as to threaten him with instant dissolution. Notwithstanding these alarming, and apparently unfavorable symptoms, he

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essentially called for wet cloths to be applied to different parts of the body, particularly about the precordia. By this means, those paroxysms of oppression &c. were uniformly relieved. Notwithstanding the safety and benefit that followed the local use of the remedy in these cases - I look upon it, as of very doubtful efficacy, and liable in many cases to be attended with very pernicious effects, when the two diseases are so blended together.

In the early stage of the disease, when it is characterized by considerable heat, and unaccompanied by symptoms of congestion in any of the great viscera, particularly of the lungs; I think the cold application may be resorted to, with the greatest prospect of success.

Having already extended this Essay much beyond my original intention; I shall close it, by merely observing, that besides those forms of fever, of which I have taken so general a view; the external application of cold water will be found exceedingly serviceable in a variety of other diseases; as Phrenitis, - Peripneumonia, - some cases of Mania, - Paralysis &c. &c; but of which, time will not permit me at this time to notice.